

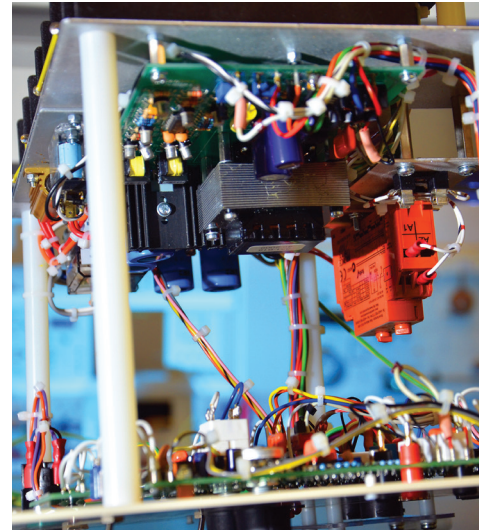
UNDERGRADUATE ENERGY CONCENTRATIONS



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

CIVIL | ELECTRICAL | MECHANICAL | SYSTEMS



UNDERGRADUATE ENERGY CONCENTRATIONS IN THE WILLIAM STATES LEE COLLEGE OF ENGINEERING

The Lee College of Engineering is a national leader in academic and research programs related to the many elements of energy production, distribution and markets. This interdisciplinary expertise is united in UNC Charlotte's Energy Production and Infrastructure Center (EPIC). Working in collaboration with the many energy engineering companies in the Charlotte, North Carolina, region, EPIC brings together students, faculty and energy professionals.

Educating engineering students to work in the many exciting areas of energy is an important mission of the Lee College of Engineering and EPIC. At the bachelor's degree level, all of the college's engineering departments offer energy-related concentrations. These concentrations develop highly sought-after energy professionals who are more marketable and adaptable to the changing marketplace for engineers.

CIVIL ENGINEERING

B.S.C.E. with Concentration in Energy Infrastructure

Civil and Environmental Engineering students can apply for the Concentration in Energy Infrastructure after their freshman year. Concentration students must complete the following core courses:

- CEGR 4090 Energy Infrastructure Systems
- CEGR 4246 Energy and the Environment
- ECGR 2161 Basic Electrical Engineering I
- MEGR 3111 Thermodynamics

Additionally, students must complete at least one course from the following electives:

- CEGR 4090 Air Pollution
- CEGR 4108 Finite Element Analysis and Applications
- CEGR 4121 Prestressed Concrete Design
- CEGR 4146 Advanced Engineering Hydraulics
- CEGR 4162 Transportation Planning
- CEGR 4182 Transportation Environmental Assessment
- CEGR 4222 Structural Steel Design II
- CEGR 4226 Reinforced Concrete Design II
- CEGR 4247 Sustainable Design
- CEGR 4278 Geotechnical Engineering II

For more information contact Dr. Martin Kane at martin.kane@uncc.edu.

ELECTRICAL ENGINEERING

B.S.E.E. with Power and Energy Systems Concentration

Students must enroll in the prerequisite courses ECGR 3142 Electromagnetic Devices and ECGR 3112 Systems Analysis II, and can then apply for the concentration after completion of their sophomore-year courses with an overall GPA of at least 3.0.

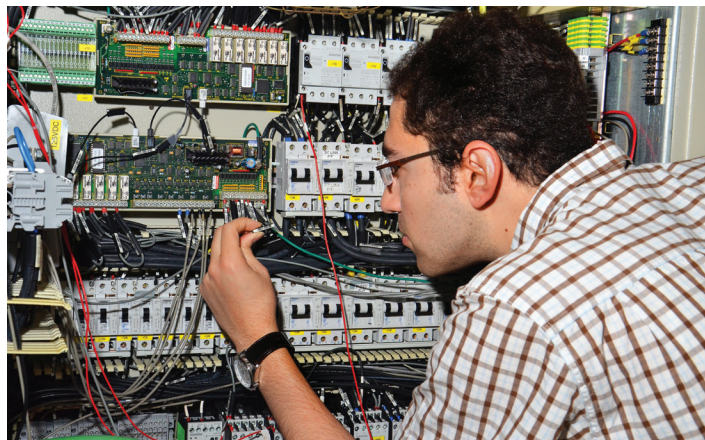
Students must take the fundamental Power and Energy technical electives:

- ECGR 4111 Control Systems Theory I
- ECGR 4141 Power Systems Analysis I
- ECGR 4142 Power Systems Analysis II
- ECGR 4143 Electrical Machinery
- ECGR 4144 Power Electronics I (Currently ECGR 3134)
- MATH 2164 Linear Algebra

They must also complete two additional three-credit Power and Energy technical electives at the 4000 level or higher. A department-approved list of such courses will be posted prior to the opening of registration each semester.

During the senior year, Power and Energy Systems Concentration students must complete an intensive, two-semester energy-related senior design project.

For more information contact Dr. Asis Nasipuri at anasipur@uncc.edu.



MECHANICAL ENGINEERING

B.S.M.E. with Energy Engineering Concentration

Students may apply to the Energy Engineering Concentration in Mechanical Engineering after successfully completing their third semester with a GPA of at least 3.0. Application for the concentration takes place during the semester that the student is enrolled in MEGR 2141 Engineering Mechanics I.

For the concentration, students take the additional survey course in energy MEGR 2499, as well as focus their four technical electives and senior design project in the area of energy.

Students must take four approved energy technical electives, which include:

- MEGR 3210 Automotive Power Plants
- MEGR 3214 Refrigeration and A/C
- MEGR 3225 Introduction to Finite Element Analysis
- MEGR 3282 Statistical Process Control and Metrology
- MEGR 3451 Stationary Power Plant Systems
- MEGR 3452 Introduction to Nuclear Engineering
- MEGR 3094 Sustainable Energy Production
- MEGR 3094 Turbomachinery
- MEGR 3094 Clean Coal Technology
- PHYS 4110 Nuclear Physics

During the senior year, energy engineering students enroll in MEGR 3455/3456 Energy Engineering Clinic II/III and complete an intensive, two-semester energy-related engineering project. These clinic courses are equivalent to Senior Design I/II in the BSME plan of study.

For more information contact Dr. Kevin Lawton at kmlawton@uncc.edu, or see the Academic Plan of Study for the Bachelor of Science in Mechanical Engineering at academics.uncc.edu/undergraduate-majors.

SYSTEMS ENGINEERING

B.S.S.E. with an Energy Systems Concentration

Students elect a concentration at the end of their sophomore year and then take energy systems related courses in the junior and senior years.

Energy Systems Concentration students take the following four courses:

- SEGR 4961 Introduction to Energy Systems
- SEGR 4962 Energy Markets
- SEGR 4963 Energy Systems Planning
- SEGR 4964 Case Studies in the Energy Industry

In addition to the above concentration courses, students can take energy related electives from other departments per approval by their advisor.

For more information contact Dr. Michael Ogle at mogle1@uncc.edu or see seem.uncc.edu/undergraduate-program/concentrations-and-electives.